

**STATE OF SOUTH CAROLINA**  
**BEFORE THE PUBLIC SERVICE COMMISSION**

**Docket No. 2021-66-A**

In the Matter of:

South Carolina Office of Regulatory Staff's Motion  
to Solicit Comments from Utilities and Other  
Interested Stakeholders Regarding Measures to Be  
Taken to Mitigate Impact of Threats to Safe and  
Reliable Utility Service

**GOOGLE, LLC'S FILED REPLY  
COMMENTS**

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Google, LLC (hereinafter, "Google"), by and through its undersigned counsel, pursuant to the Public Service Commission of South Carolina's (the "Commission") March 10, 2021 Order (the "Order") opening the above-captioned docket, as well as pursuant to the Commission's Rules and Regulations of Procedure, hereby submits these filed Reply Comments in the above-captioned proceeding to consider matters related to the ongoing safety and reliability of utility service in South Carolina. In timely submitting these reply comments, Google hereby expressly reserves the opportunity to amend, supplement or submit additional comments or testimony, whether in writing or at any hearing, either directly or in response to those made by other participants. Google will do so in accordance with any schedule set by the Commission, including in the Order, or as further permitted by the Commission.

**1. Introduction**

Several significant changes underway in the energy sector must be considered in any discussion of reliability, resiliency, and utility regulation. Traditional approaches to reliability are being challenged by changing weather patterns, unprecedented growth in renewable and

distributed energy resources (DERs), modern cost drivers, and expanding opportunities and demand for customer choice. Most of the utilities' comments focused on how reliability has been traditionally or is currently assessed with little, to no, attention to forward looking challenges and how they will cost-effectively transition resource portfolios, while ensuring high-levels of reliability and resilience for their customers.

Google has committed to the ambitious goal to run our business on carbon-free energy everywhere, at all times, by 2030. The clean energy future that we envision calls for a different approach to grid planning that incorporates flexible load, two-way power flows, and responsive demand. Supportive market constructs are critical in demonstrating that Google can achieve our 24/7 carbon-free energy for our data center fleet, economically.

Wholesale electricity markets offer a potential solution to proactively accommodate the changes underway in the industry by leveraging currently untapped resources and bringing their benefits into regular operations. Technology and innovative processes can reduce costs associated with supply, while flexible load can simultaneously reduce costs associated with demand. Initial party comments illustrate the benefits of power imports and demand-side resources, yet current operating practices only leverage these benefits during emergencies.

To reiterate our initial comments, claims that insinuate that an RTO construct should be avoided in the Southeast are not only incorrect, but may actually be harmful to grid reliability in South Carolina. Electricity markets are highly versatile and can be tailored to state priorities and needs, including integrated reliability planning. A well-organized wholesale market could improve reliability and resiliency and lessen the likelihood of grid failures like what occurred in Texas.

## 2. Electricity Market Regulation and Oversight

**The term “deregulation” is somewhat of a misnomer and can be used in misleading ways.** In initial comments, several parties cited the deregulated nature of Texas’ markets as a factor in the blackouts.<sup>1</sup> While we agree that the state’s regulatory framework failed, it is important to reemphasize that the deregulated market model in general is not to blame for the blackouts, but instead a combination of factors, including Texas’ individual lack of regulatory oversight. Despite the term, most “deregulated” RTOs/ISOs are indeed regulated by federal and state entities, and often create additional governance mechanisms. Texas is a notable exception. As discussed in our initial comments, ERCOT is the only RTO/ISO not overseen by FERC because it operates exclusively within state borders; all other RTOs/ISOs operate across multiple states and are subject to FERC oversight. Furthermore, Texas state regulators are limited in their jurisdiction to enforce reliability standards as a result of policy decisions made by the state legislature. Of the factors where market design issues played a role in the February blackouts, most of these are not inherent to the RTO model itself, but were unique to Texas’ approach and need not be replicated elsewhere.

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<sup>1</sup> See June 10, 2021 Comments of Dominion Energy South Carolina, Inc. (hereinafter, “Dominion Comments”) at 6: “Customers’ overriding demand is, ‘Keep the lights on,’ or on the gas system, ‘Keep the gas flowing.’ These were the expectations that deregulated Texas utility systems were tragically unable to meet.” At 8: “Serious reliability mistakes are possible in this transition just as we now understand that Texas made punishing mistakes in the reliability choices it made in deregulating its electric industry.”

See also June 11, 2021 Duke Energy Carolinas and Duke Energy Progress Response to Commission Order No. 2021-163 (hereinafter, “Duke Comments”) at 4: “In deregulated and restructured utility models, such as in Texas and California, system operations are not integrated across many of the functions outlined above as they are in South Carolina...As was seen in the Texas Blackout and the August 2020 Western Heatwave Event (the “California Blackout”), the consequences of not planning, investing, and operating as an integrated electric system with a high degree of accountability can be significant and have devastating impacts on customers.”

**Restructured markets can be customized to meet state needs, including reliability standards and resource adequacy.** Of the seven RTOs/ISOs in the United States, no two are exactly alike. There is no one-size-fits-all approach to market design; each market can be structured according to local priorities and needs. There is a spectrum of design options in an RTO to incentivize reliability investments and ensure resource adequacy. Some RTOs utilize capacity markets; some, like ERCOT, utilize scarcity pricing; while others use different or a combination of approaches. Within any market structure, sufficient regulatory oversight is critical to ensure that markets are successfully open, non-discriminatory, and equitable.<sup>2</sup>

Duke's initial comments stated that "During February 2021, the energy market dynamics did not incent hundreds of independent generators to weatherize for extreme cold in order to 'show up' and generate when customers needed the electricity the most, despite several widespread prior cold weather events occurring in the Southwest and Texas since the 1980s."<sup>3</sup> To reiterate our initial comments, the lack of weatherization was not solely a result of ERCOT's market dynamics. Despite very strong financial incentives, resources were unable to deliver capacity because of unplanned outages.<sup>4</sup> Texas regulators were not empowered with adequate oversight to enforce weatherization upgrades. The conditions in February were more severe than previous cold weather events and were highly improbable. This underscores the critical importance of effective regulatory oversight and planning for resiliency.

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<sup>2</sup> Google does not find SEEM to be an open and transparent market. A full analysis of SEEM is outside the scope of these comments. As noted throughout these comments, open and transparent markets require thoughtful structure along with good governance.

<sup>3</sup> Duke Comments at 4.

<sup>4</sup> International Association for Energy Economics and Energy Forum (2021), "The Texas Freeze Out: Electric Power Systems, Markets and the Future," <https://www.bakerinstitute.org/media/files/files/bc261393/00-foss-online-texas-freeze-iaee.pdf>.

**Vertically-integrated utilities and integrated planning processes can coexist with wholesale markets.** In initial comments, Duke and Dominion referenced Texas' unbundling of vertically-integrated utilities as a cause of the February blackouts and emphasized the importance of integrated planning and operations to reliability and resilience.<sup>5</sup> In this respect, Texas' approach is again unusual. Outside of ERCOT, vertically-integrated utilities frequently operate in other RTOs/ISOs. Even so, it is also worth emphasizing that the vertically-integrated model is not itself an inherent guarantee of reliability. In fact, during the Texas blackout, the resources controlled by fully regulated monopolies, such as municipalities and co-ops, generally did not perform as well as those resources controlled through the competitive market.<sup>6</sup>

Adequate planning and prudent investment are crucial for resiliency, and many states operating within RTOs require their utilities to file IRPs. For example, Kentucky Power, which operates within PJM, also files an IRP with the Kentucky Public Service Commission, as does Xcel Energy Minnesota, which operates within MISO, but files an IRP with the Minnesota Public Utilities Commission. Under both state planning constructs, resource adequacy is evaluated at both the state and wholesale level. This means that Xcel Energy Minnesota must meet MISO resources

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<sup>5</sup> Dominion Comments at 4: "In deregulated and restructured utility models, such as in Texas and California, system operations are not integrated across many of the functions outlined above as they are in South Carolina...the consequences of not planning, investing, and operating as an integrated electric system with a high degree of accountability can be significant and have devastating impacts on customers." At 6: "In deregulating its electricity system, Texas substituted market structures and contractual obligations for vertical integration."

Duke Comments at 4: "In deregulating its electricity sector, Texas replaced vertical integrated utilities with a system of day-ahead and real-time electricity markets and unregulated power producers."

<sup>6</sup> International Association for Energy Economics and Energy Forum (2021), "The Texas Freeze Out: Electric Power Systems, Markets and the Future," <https://www.bakerinstitute.org/media/files/files/bc261393/00-foss-online-texas-freeze-iaee.pdf>.

adequacy requirements, while at the same time demonstrating to the Minnesota PUC that it has sufficient resources to serve native load.

### 3. Potential Benefits of Electricity Markets

#### 3.1 Reliability and Resiliency

**Markets can mitigate risks associated with changing weather patterns by enabling access to generation resources across a wider geographic footprint.** Utility planning processes rely on historical weather data, yet weather patterns are changing, and extreme weather events are becoming more frequent and intense. Iterative and transparent planning processes, along with regional collaboration, will be key to learning how to best address the challenges that extreme weather presents to utilities and their customers.

Electricity markets can complement robust planning processes. A key component of any risk mitigation strategy is diversification, and the same is true with electricity. Despite being physically connected within the Eastern Interconnection, South Carolina's electric grid remains largely islanded from an operational standpoint. Utilities lean on the state's most immediate neighbors as regular sources of imports, only occasionally importing from farther distances during emergencies.<sup>7</sup> This approach of importing as-needed surely benefits the system in times of emergencies, but, by relying so heavily on the resources within their balancing authority area – and planning to continue doing so – South Carolina utilities increase risks and costs to

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<sup>7</sup> Dominion Comments at 10: "DESC typically trades power with southeastern utilities such as Duke Energy, Santee Cooper, and Southern Company as well as independent power producers with generation facilities in the region. But when the need is acute, DESC has moved power into its system from as far away as Missouri or Michigan."

consumers. With intentional planning and thoughtful market design, utilities could harness the benefits of imports into their regular operations.

Duke, S.C. Public Service Authority (“Santee Cooper”), and Central Electric Power Cooperative (“CEPC”) all cite loss of or limits to imported power as a vulnerability in the system.<sup>8</sup> Subsequently, the state could benefit from having greater ability to import energy as needed from the wide-reaching Eastern Interconnection. If managed properly, imports and exports would not threaten the ability of utilities to protect their system, but would instead bolster system reliability and resiliency. Furthermore, the transmission system offers many opportunities for additional technological applications. The Brattle Group recently conducted a study on grid enhancing technologies, including dynamic line ratings, advanced power flow control, and topology optimization, for the transmission system. The study finds that grid enhancing technologies can double the available capacity available for renewable energy integration.<sup>9</sup> This suggests that imports from within the region could be greatly expanded without constructing additional transmission lines.

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<sup>8</sup> Duke Comments at 81: “The limiting of imports/exports can pose a risk to the system when capacity is needed by a utility.”

June 11, 2021 Comments of CEPC (hereinafter, “CEPC Comments”) at 15: “South Carolina, and specifically the Santee Cooper BAA, has a limited import capability and therefore cannot rely on large emergency power imports...”

June 11, 2021 Comments of Santee Cooper (hereinafter, “Santee Cooper Comments”) at 8: “Operating transmission systems near reliability constraints limits the amount of energy that can be imported from the market.” At 11: “Although, the energy market unavailability is unlikely, the amount of energy that can be imported and delivered to the end-user during Extreme Cold Weather may be limited by transmission availability.”

<sup>9</sup> See Unlocking the Queue with Grid-Enhancing Technologies: Case Study of the Southwest Power Pool. The Brattle Group. February 1, 2021. Available here: [https://watt-transmission.org/wp-content/uploads/2021/02/Brattle\\_Unlocking-the-Queue-with-Grid-Enhancing-Technologies\\_Final-Report\\_Public-Version.pdf90.pdf](https://watt-transmission.org/wp-content/uploads/2021/02/Brattle_Unlocking-the-Queue-with-Grid-Enhancing-Technologies_Final-Report_Public-Version.pdf90.pdf)

**Electricity markets can help mitigate high fuel prices and avoid the need to build new, expensive infrastructure.** To an extent, utilities already look to power markets in response to constraints in the coal and natural gas supply chains into South Carolina. “The Companies also use the purchases from the power market to support system load demands when economic or if needed for reliability. The power market can be utilized to displace coal or gas dispatches for economics, when inventory is low or flexibility on the pipelines is constrained, as well as managing fuel price volatility...When cold winter weather causes gas prices to escalate, additional purchased power often presents a more cost effective and equally reliable alternative to power generation at elevated fuel prices.”<sup>10</sup> It would likely be very expensive to build or upgrade generation resources to withstand improbable extreme weather conditions, yet these are exactly the types of conditions that carry the most severe risks. Electricity markets provide a reliable alternative to these expensive investments.

### 3.2 Customer Demands and Resource Diversity

**Electricity markets can integrate growing renewable energy levels quickly and cost-effectively.** Just as customer demand for clean energy choices is growing, Dominion and Duke have both recently announced net-zero carbon targets. This clean energy transition will challenge grid reliability. The intermittent nature of renewables results in the need for investments in redundant generation and often results in curtailment of renewable resources. As renewable energy penetrations increase, current geographically-restricted trading practices will likely cost ratepayers money in the form of high renewable integration costs and curtailments as compared to the status quo. According to Duke, “purchases from the power market can be utilized to

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<sup>10</sup> Duke Comments at 82-83.

displace coal, gas, or fuel oil generation,”<sup>11</sup> yet, rather than leveraging market purchases more fully, investments in redundant generation and curtailment create additional costs. Furthermore, relying on carbon-intensive fuel oil for backup generation in emergencies is a step backward from Duke’s and Dominion’s greenhouse gas reduction commitments.

Traditional planning processes and system balancing are rooted in a centralized, fossil generation portfolio. Increasingly, however, renewable energy and distributed energy are the least-cost options to meet demand. For example, a competitive all-source RFP issued by PacifiCorp, a multi-state utility in the west, resulted in a shortlist of approximately 1.8 GW of wind, 1.5 GW of solar, and 1 GW of storage.<sup>12</sup> Another example is Xcel Energy Colorado’s all-source competitive solicitation that resulted in \$0.017/kWh bid for wind, a \$0.023/kWh bid for solar, and a \$0.03/kWh bid for solar plus storage. These all-source competitive solicitations demonstrate that renewable energy resources will quickly become a large portion of most utilities resource portfolios.<sup>13</sup> Because of the substantial potential for financial savings, the question is how to quickly and cost-effectively integrate renewable resources. Electricity markets offer an attractive potential solution.

**Electricity markets can create opportunities for demand-side technologies and services that can improve system reliability and resilience.** Demand-side resources, such as DERs and energy efficiency, are critical for customer resiliency. Historically, extreme weather events, especially hurricanes and ice streams, in South Carolina have generally been accompanied

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<sup>11</sup> Duke Comments at 38.

<sup>12</sup> See PacifiCorp submits final shortlist as key part of the company’s largest ever renewables solicitation. June 16, 2021. Available here: <https://www.pacificorp.com/about/newsroom/news-releases/shortlist-submitted-as-part-of-largest-ever-renewables-solicitation.html>

<sup>13</sup> See Xcel’s record-low-price procurement highlights benefits of all-source competitive solicitations. Utility Dive. June 1, 2021. Available here: <https://www.utilitydive.com/news/xcel-record-low-price-procurement-highlights-benefits-of-all-source-compe/600240/>

by significant damage to distribution infrastructure.<sup>14</sup> Under these circumstances, the status of generation assets is effectively irrelevant, as there is no ability to deliver power, regardless of whether it is being generated. Many of the same tools and technologies that can improve load flexibility also improve the quality of service and customer safety and comfort. To this point, Vote Solar's initial comments echo the resiliency benefits of DERs, particularly customer-sited DERs.<sup>15</sup>

Demand-side management (DSM) and demand response (DR) allow for peak shaving and reduce the need to generate or purchase power and protect the system from exceeding its load limitations.<sup>16</sup> While there are many valuable DSM offerings already in place in the state, demand-side resources are not widely or routinely utilized. For example, Duke's load reduction plan is only cited as a last-ditch resort during a system emergency when reduction of load is required to stabilize the electric grid. DSM tools are considered, but not required, and are used at the discretion of system operators.<sup>17</sup>

These potential load reductions should be explored and leveraged to improve overall system performance and reliability. Some RTOs/ISOs have created market participation models for DSM and DR resources, enabling them to participate in markets like generation resources, potentially circumventing the need for additional infrastructure investments and preempting concerns about cost allocation and recovery. Consequently, electricity markets can leverage the

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<sup>14</sup> Duke Comments at 71: "Historically, the biggest risk has been from hurricanes coming on shore in the Carolinas and causing damage to the Companies' transmission infrastructure. These events are generally accompanied by significant damage to the Companies' lower voltage distribution infrastructure which results in reduced customer load so that any loss of power generation has not resulted in system capacity concerns."

<sup>15</sup> Vote Solar Comments at 3.

<sup>16</sup> For further information, see the South Carolina Energy Office's annual report on electric and natural gas utility demand-side management activities: <http://www.energy.sc.gov/reports>.

<sup>17</sup> Duke Comments at 34 and 96.

robust opportunities offered by DSM and move toward a more dynamic, reliable, and customer-centric grid.

#### 4. Conclusion

There are numerous emergent factors driving the need for South Carolina to evaluate how utilities will continue to provide reliable, resilient, and cost-effective service to customers. Many of these factors, such as evolving resource portfolios and distributed energy resources, will intensify in the near term and create significant challenges and opportunities. Enhancing planning processes and developing market-based approaches that integrate these resources are likely to create more reliable, resilient, and cost-effective power systems for South Carolinians

Accordingly, in addition to and consistent with its previously filed comments, Google, LLC, respectfully submits the foregoing Reply Comments for the Commission's consideration.

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**CERTIFICATE OF SERVICE**

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